

Table 12.1 Emissions of Greenhouse Gases, 1990-2008

Year	Greenhouse Gases								Greenhouse Gases, Based on Global Warming Potential ¹				
	Carbon Dioxide ^{2,3}					Methane	Nitrous Oxide	HFCs PFCs SF ₆	Carbon Dioxide ²	Methane	Nitrous Oxide	HFCs PFCs SF ₆	Total
	Energy Related ⁴	U.S. Territories ⁵	Bunker Fuels ⁶	Other Sources ⁷	Total								
Million Metric Tons of Gas									Million Metric Tons Carbon Dioxide Equivalent ²				
1990	5,020	32	-114	85	R5,022	31.3	R0.9	--	R5,022	R784	R279	R102	R6,187
1991	4,975	36	-121	86	R4,976	R31.2	R1.0	--	R4,976	R781	R288	R93	R6,138
1992	5,069	36	-111	88	R5,083	R31.4	R1.0	--	R5,083	R785	R293	R98	R6,258
1993	5,172	38	-100	94	R5,203	R30.4	R1.0	--	R5,203	R760	R293	R97	R6,353
1994	5,251	41	-99	97	R5,290	R30.5	R1.1	--	R5,290	R763	R314	R100	R6,466
1995	5,302	39	-102	102	R5,342	R30.2	R1.0	--	R5,342	R756	R306	R119	R6,522
1996	5,488	38	-103	104	R5,526	R29.3	R1.0	--	R5,526	R731	R308	R130	R6,695
1997	5,562	39	-111	104	R5,595	29.2	R1.0	--	R5,595	R729	R298	R137	R6,759
1998	5,605	41	-116	96	R5,627	R27.8	R1.0	--	R5,627	R696	R297	R152	R6,772
1999	5,665	41	-108	97	R5,695	27.6	R1.0	--	R5,695	R690	R294	R149	R6,829
2000	5,850	43	-104	98	R5,886	R27.3	R1.0	--	R5,886	R683	R290	R151	R7,010
2001	5,745	54	-100	97	R5,797	R26.7	R1.0	--	R5,797	R669	R286	R138	R6,888
2002	5,790	53	-92	98	R5,849	R26.9	R1.0	--	R5,849	R673	R284	R148	R6,954
2003	5,835	57	-86	99	R5,905	R27.3	R.9	--	R5,905	R682	R283	R142	R7,012
2004	5,952	61	-105	102	R6,009	R27.5	R1.0	--	R6,009	R687	R302	R154	R7,151
2005	5,973	58	-107	103	R6,028	R27.7	R1.0	--	R6,028	R692	R304	R158	R7,182
2006	5,894	58	-129	106	R5,929	R28.3	R1.0	--	R5,929	R706	R305	R161	R7,101
2007	5,990	55	-130	106	R6,020	R28.9	R1.0	--	R6,020	R723	R300	R170	R7,213
2008	5,810	48	-127	104	5,835	29.5	1.0	--	5,835	737	300	176	7,049

¹ Emissions of greenhouse gases are weighted based upon their relative global warming potential (GWP), with carbon dioxide equal to a weight of one. See "Global Warming Potential" in Glossary.

² Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

³ Carbon dioxide data in this table differ from those for the United States in Table 11.19 because data in this table: include emissions from electric power sector use of geothermal energy and non-biomass waste; include emissions from the U.S. Territories; include emissions from cement manufacture, limestone consumption, natural gas production, and other sources; and exclude emissions from bunker fuels.

⁴ U.S. carbon dioxide emissions from: fossil fuel combustion; the nonfuel use of fossil fuels; and electric power sector use of geothermal energy and non-biomass waste. Geographic coverage is the 50 States and the District of Columbia.

⁵ U.S. Territories' energy-related carbon dioxide emissions. Geographic coverage is American Samoa, Guam, Puerto Rico, U.S. Pacific Islands, U.S. Virgin Islands, and Wake Island. According to the "United Nations Framework on Climate Change" (UNFCC), emissions from the U.S. Territories are included in the U.S. inventory.

⁶ U.S. carbon dioxide emissions from bunker fuels (marine, aviation, and military). According to the UNFCC, emissions from bunker fuels are excluded from the U.S. inventory.

⁷ U.S. carbon dioxide emissions from: cement manufacture; limestone consumption; flaring of natural gas at the wellhead, and carbon dioxide scrubbed from natural gas; soda ash manufacture and consumption; carbon dioxide manufacture; aluminum manufacture; shale oil production; and waste

combustion in the commercial and industrial sectors.

R=Revised. -- = Not applicable because these gases cannot be summed in native units.

Notes: • HFCs = hydrofluorocarbons; PFCs = perfluorocarbons; and SF₆ = sulfur hexafluoride.

• Emissions are from anthropogenic sources. "Anthropogenic" means produced as the result of human activities, including emissions from agricultural activity and domestic livestock. Emissions from natural sources, such as wetlands and wild animals, are not included. • Because of the continuing goal to improve estimation methods for greenhouse gases, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community. Revisions reflect updates to GWP estimates, as well as to energy consumption data and updated emission factors, where applicable. • For information on units for measuring greenhouse gases, see [http://www.eia.gov/oiaf/1605/ggrpt/pdf/0573\(2008\).pdf](http://www.eia.gov/oiaf/1605/ggrpt/pdf/0573(2008).pdf), page 12, box titled "Units for Measuring Greenhouse Gases." • See Note, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: For related information, see <http://www.eia.gov/environment.html>.

Sources: **Energy-Related Carbon Dioxide:** Table 12.2. **Total Carbon Dioxide (columns 5 and 9):** Calculated as the sum of columns 1-4. **Methane (column 6):** Table 12.5. **Nitrous Oxide (column 7):** Table 12.6. **Total Greenhouse Gases:** Calculated as the sum of columns 9-12. **All Other Data:** U.S. Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 2008* (December 2009), Tables 1, 14, and 15.